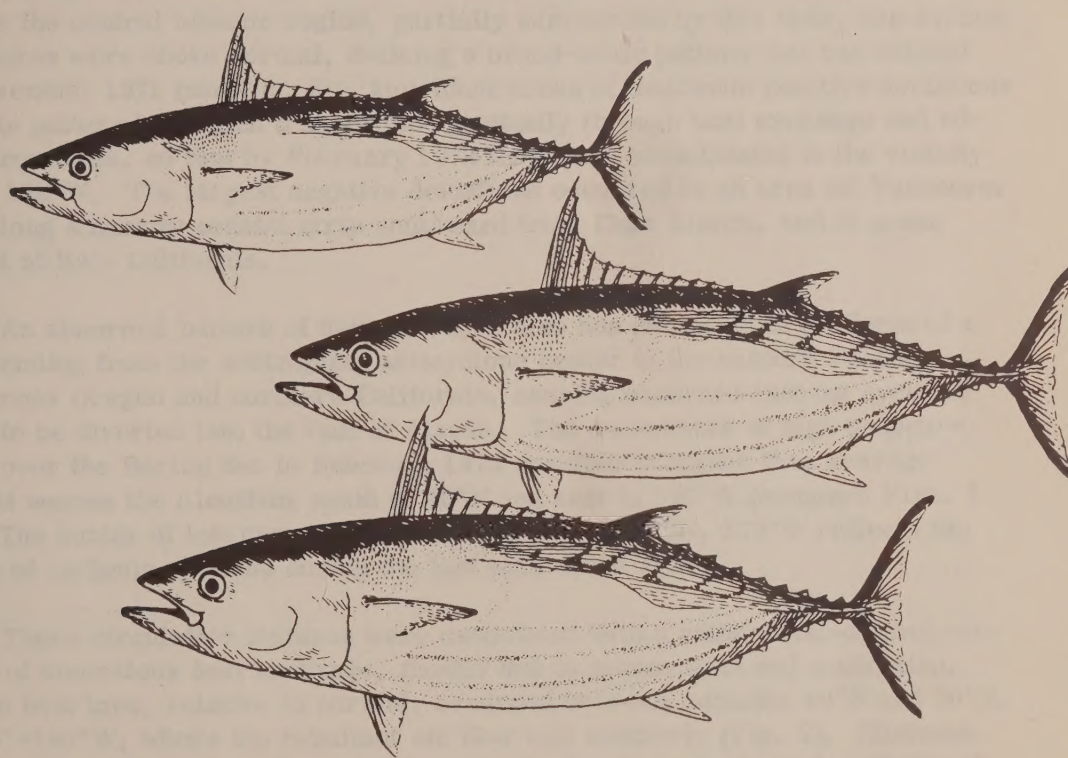
FEBRUARY 1972, No. 2

FISHING INFORMATION

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



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NARRATIVE DESCRIPTION OF OCEAN TEMPERATURE CONDITIONS

FEBRUARY 1972

Northeastern Pacific

Below-normal sea surface temperatures persisted from southeast Alaska to Baja California in a broad coastal zone that stretched westward toward the Aleutian Islands north of 50°N, and southwestward to Hawaii in subtropical latitudes. In the central oceanic region, partially surrounded by this zone, sea surface temperatures were above normal, defining a broad-scale pattern that has existed since November 1971 (see Fig. 5). Individual areas of maximum positive deviations within this pattern have been transformed gradually through heat exchange and advective processes, so that by February 1972 they were consolidated in the vicinity of 39°N, 152°W. The largest negative deviations occurred in an area off Vancouver Island, along a narrow coastal strip southward from Cape Blanco, and in areas southwest of Baja California.

An abnormal pattern of high pressure also has persisted in the form of a ridge extending from the subtropical anticyclone center in the eastern Pacific inland across Oregon and northern California, causing eastward-moving cyclonic systems to be diverted into the Gulf of Alaska. The occurrence of high pressure systems over the Bering Sea in February 1972 resulted in higher than average pressures across the Aleutians south to 40°N and east to 145°W (compare Figs. 1 and 2). The center of low pressure seen in Figure 2 at 38°N, 173°W reflects the presence of cyclonic systems during the last part of the month.

These circulation features were associated with a rather well-defined distribution of anomalous heat exchange, mostly due to evaporation and conduction. Maximum heat loss, relative to normal, occurred between latitudes 40°N and 50°N, from 145°-160°W, where the resultant air flow was northerly (Fig. 2). Minimum heat loss occurred under predominantly southerly flow between latitudes 25°N and 40°N, from 130°-140°W. The nearly negligible response of the sea temperature anomalies to these abnormal heat fluxes is a consequence of the deep thermally-mixed surface layer characteristic of winter, through which anomalous heating or cooling is distributed.

Eastern Tropical Pacific

Sea water temperatures 100-300 miles southeast of the Galapagos Islands increased as much as 6°F from January to February 1972. Warming also took place along the equatorial zone westward to 145°W, weakening the below-normal conditions which have prevailed for several months. This warming trend increased

during the month because of lighter-than-normal winds and cloud cover associated with a southwestward shift of the southern hemisphere high pressure center and a southward shift, by 5° of latitude, of the intertropical convergence zone.

Persistent, strong winds and increased cloud cover south of 25°N, between 150°W and 160°W, contributed to decreasing temperatures. The magnitude of the negative anomaly near the equator at these longitudes became more than 4°F.

Temperatures changed from mostly below normal to mostly above normal in the 5°-15°N band from Central America westward to 140°W. Below-normal temperatures occurred along most of the Mexican coast and in the vicinity of 10°N, 90°W (Costa Rica Dome) primarily because of increased winds.

Staff, Fishery-Oceanography Group
R. Michael Laurs, Leader

* * * * * * * * * * *

Errata

The mean sea surface temperature chart of the western north Pacific Ocean for January 1-31, 1972, published in the January 1972 issue of Fishing Information, depicts incorrect temperatures (too warm) off northern Hokkaido, the Kuril Islands, and southern Kamchatka, owing to erroneous data. A re-analysed chart for January 1972 prepared from corrected data will appear in Fishing Information for March 1972, No. 3.

SEA SURFACE TEMPERATURE CHARTS, PACIFIC OCEAN

FEBRUARY 1972

Acknowledgements

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National Marine Fisheries Service, La Jolla, California; Honolulu, Hawaii; Seattle, Washington
National Weather Service, San Diego, California
National Ocean Survey, Pacific Marine Center, Seattle, Washington
Pacific Environment Institute, Fisheries Research Board of Canada West Vancouver, British Columbia, by H. J. Hollister from observations; D. Smith at Langara Island; J. Godin at Cape St. James Light; L. Collins at Kains Island Lightstation; O. A. Edwards at Amphitrite Point Light
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Charts

Figure 1. -- Twelve year mean (1961-1972) observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots) and average wind speed (knots) regardless of direction.

Figure 2. -- Observed sea level values of barometric pressure (millibars), resultant wind direction (degrees true), resultant wind speed (knots), and average wind speed (knots) regardless of direction.

Figure 3. -- Mean sea surface temperature, eastern north Pacific Ocean. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 4. -- Mean sea surface temperature chart, western north Pacific Ocean.

Figure 5. -- Deviation of sea surface temperatures, eastern north Pacific Ocean from long term charts of H. O. 225. Hatched areas are colder in 1972.

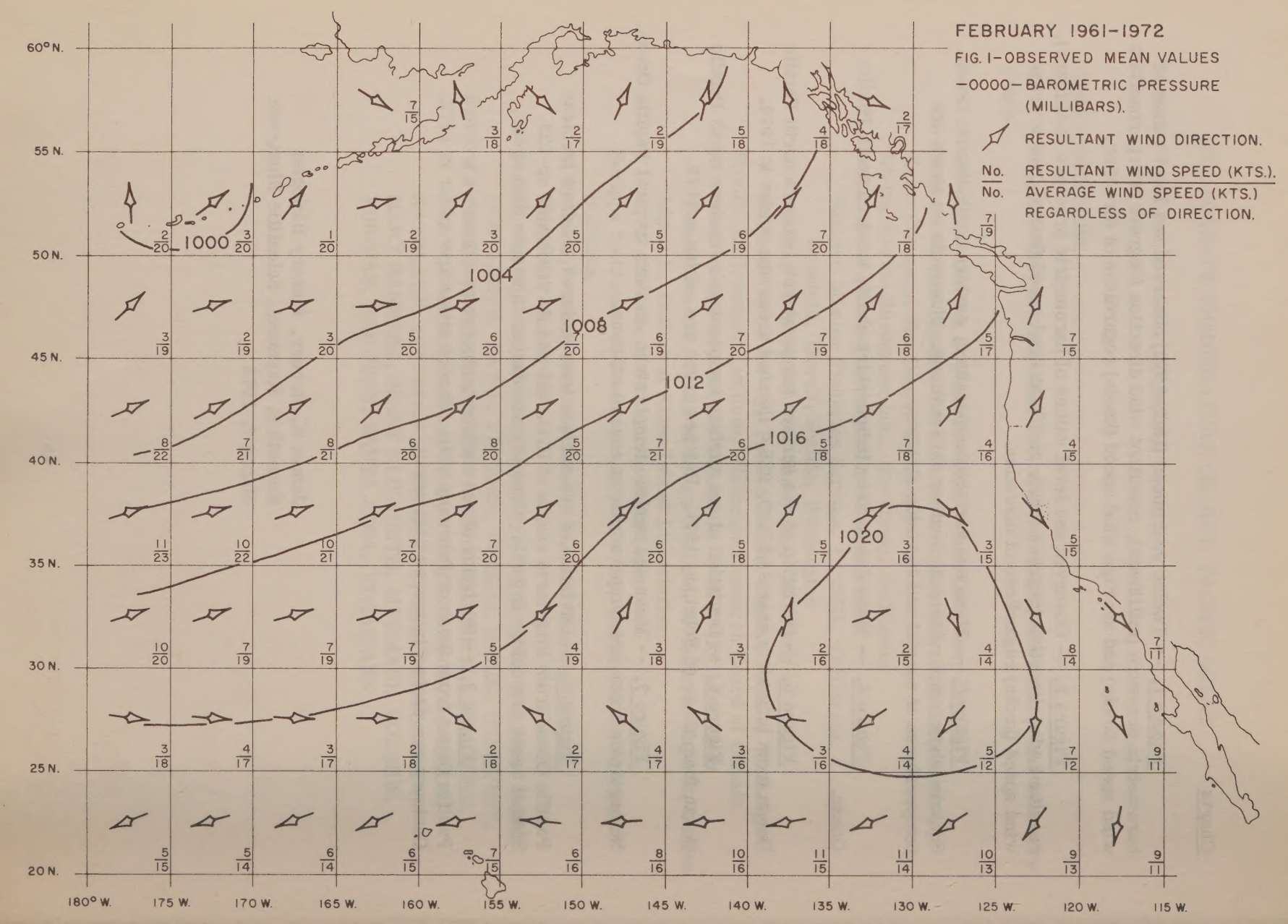
Figure 6. -- Deviation of sea surface temperatures, eastern north Pacific Ocean from those of February 1971. Hatched areas are colder in 1972.

Figure 7. -- Mean sea surface temperature, eastern tropical Pacific Ocean. Numerals on shore are temperatures at coastal stations.

Figure 8. -- Deviation of sea surface temperatures, eastern tropical Pacific Ocean from long-term charts of H. O. 225 and NAVOCEANO sp-123. Shaded areas are colder in 1972. Contours are dashed in sparse data areas.

Figure 9. -- Deviation of sea surface temperatures, eastern tropical Pacific Ocean from those of February 1971. Shaded areas are colder in 1972. Contours are dashed in sparse data areas.

James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator
March 7, 1972


FEBRUARY 1961-1972
FIG. 1-OBSERVED MEAN VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1000
1004
1008
1012
1016
1020
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

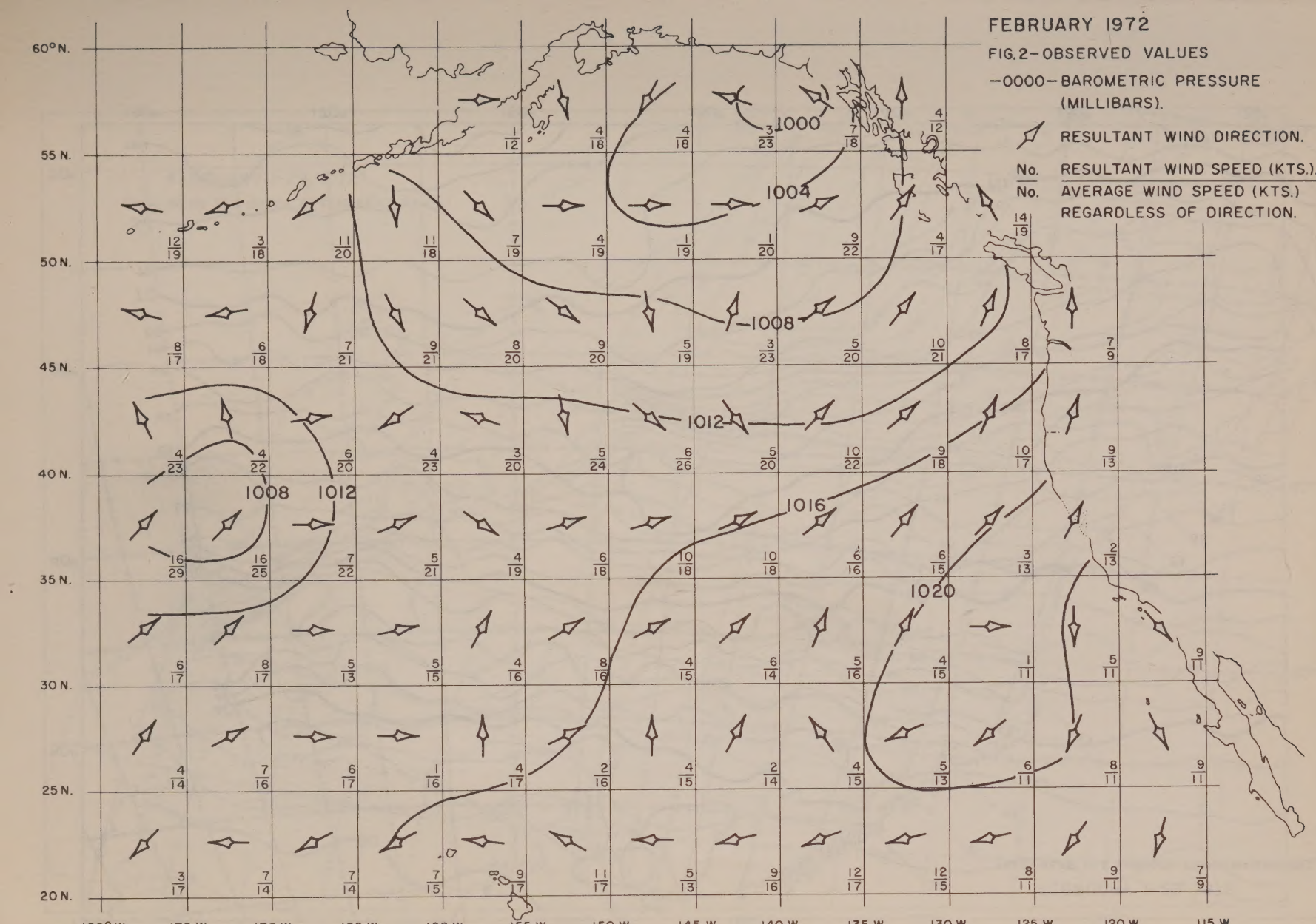

FEBRUARY 1972
FIG. 2 - OBSERVED VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.).
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1000
1004
1008
1012
1016
1020
1008
1012
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

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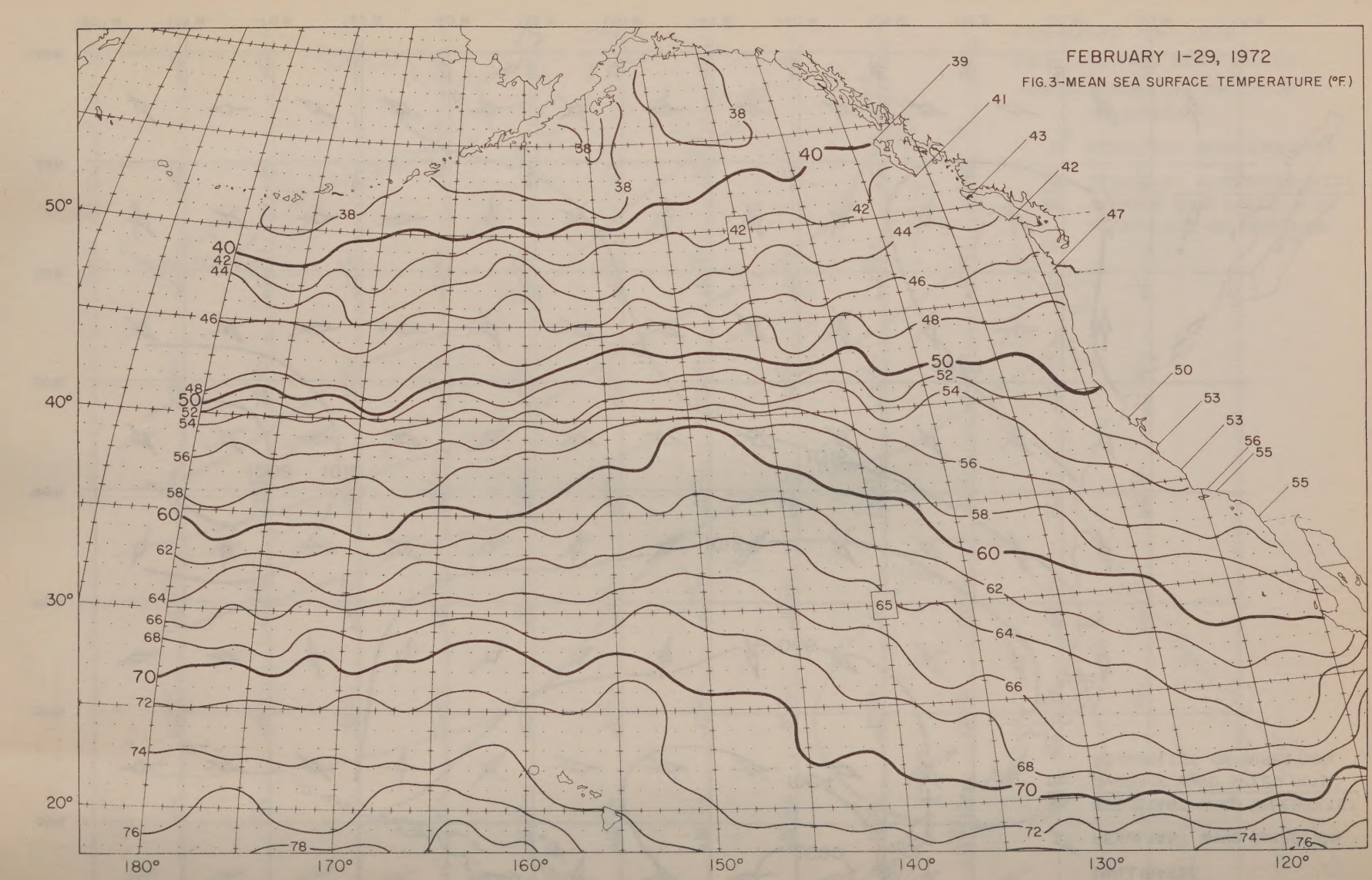
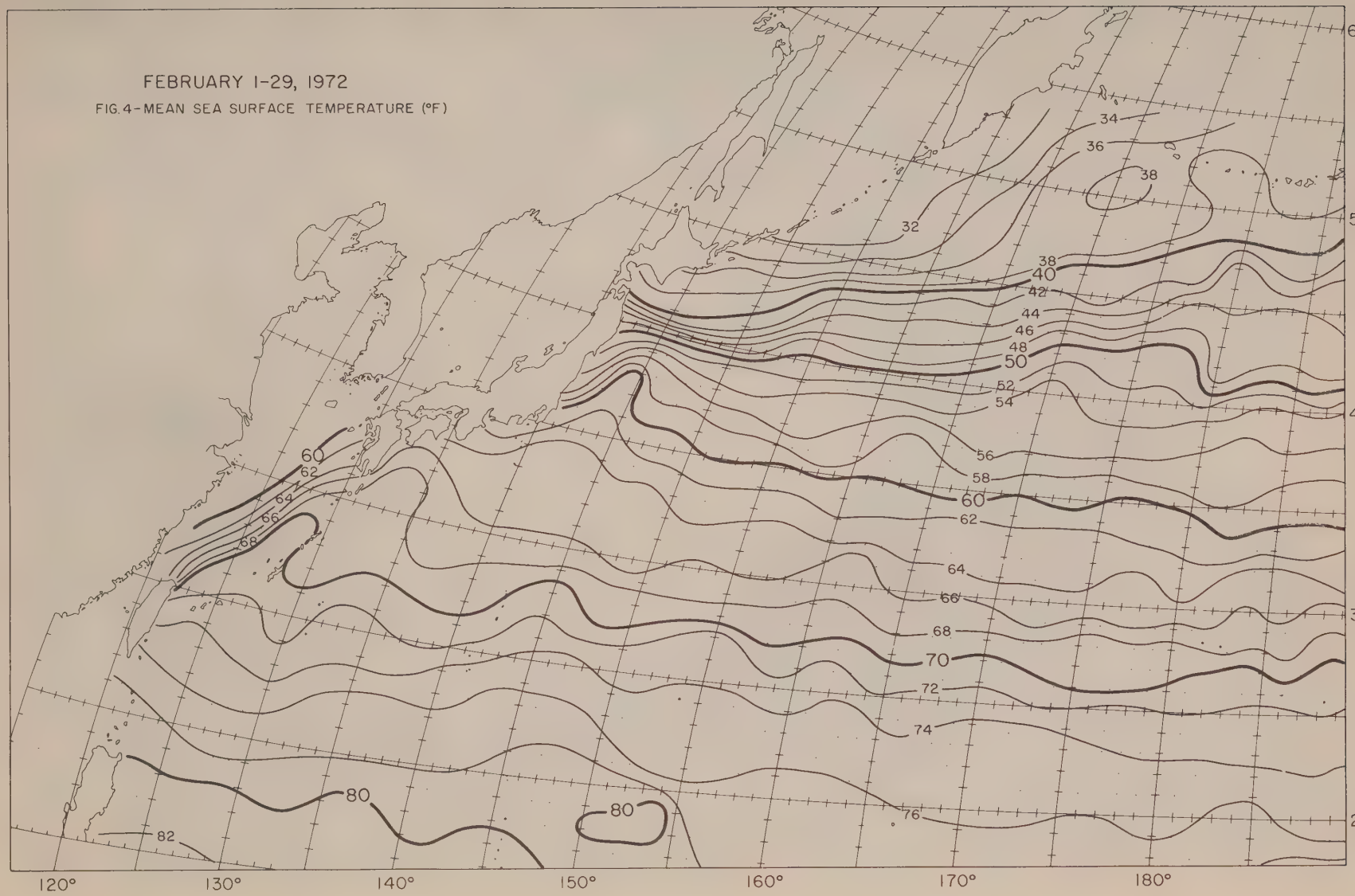
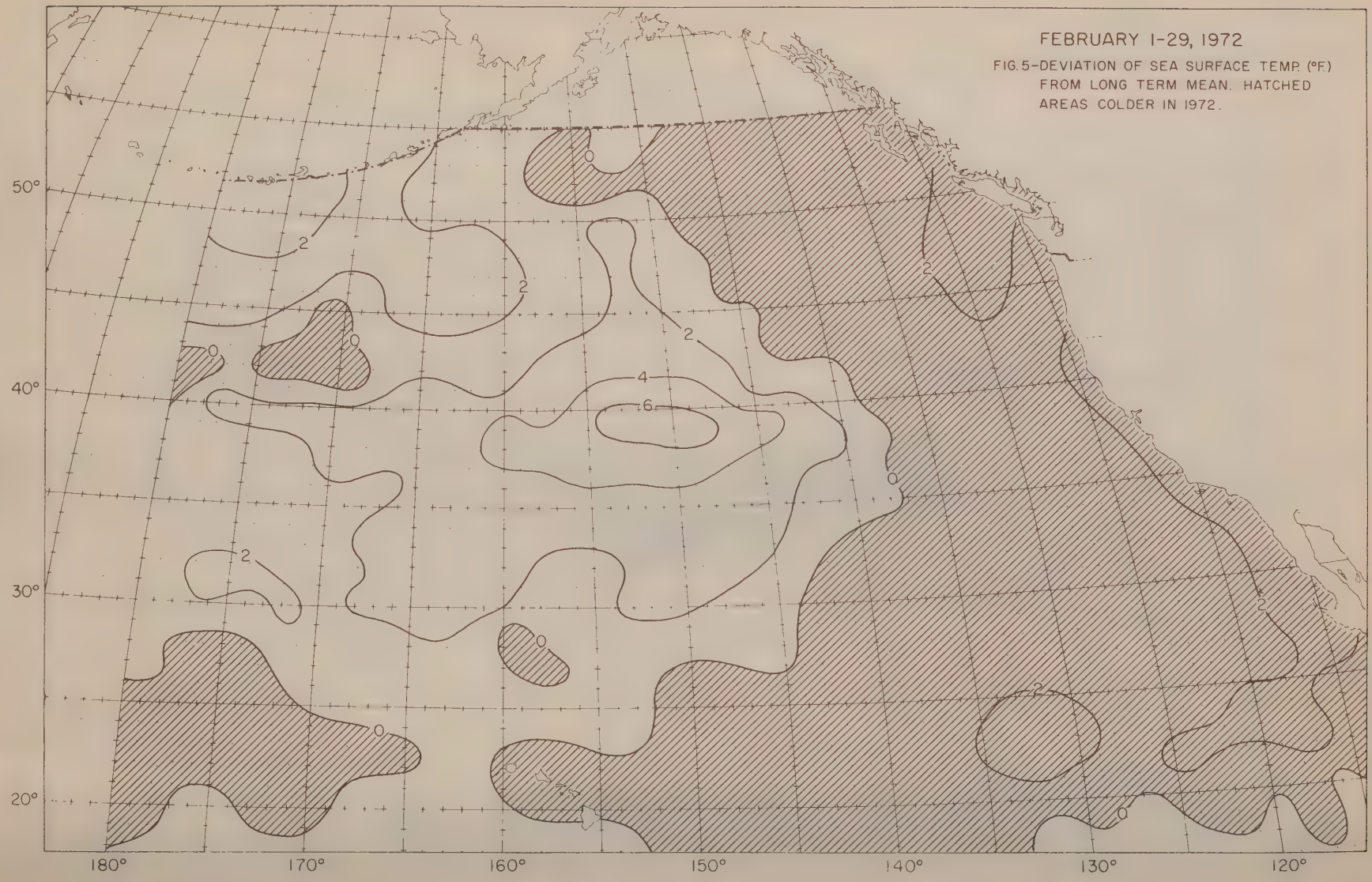
FIG.3-MEAN SEA SURFACE TEMPERATURE (°F.)

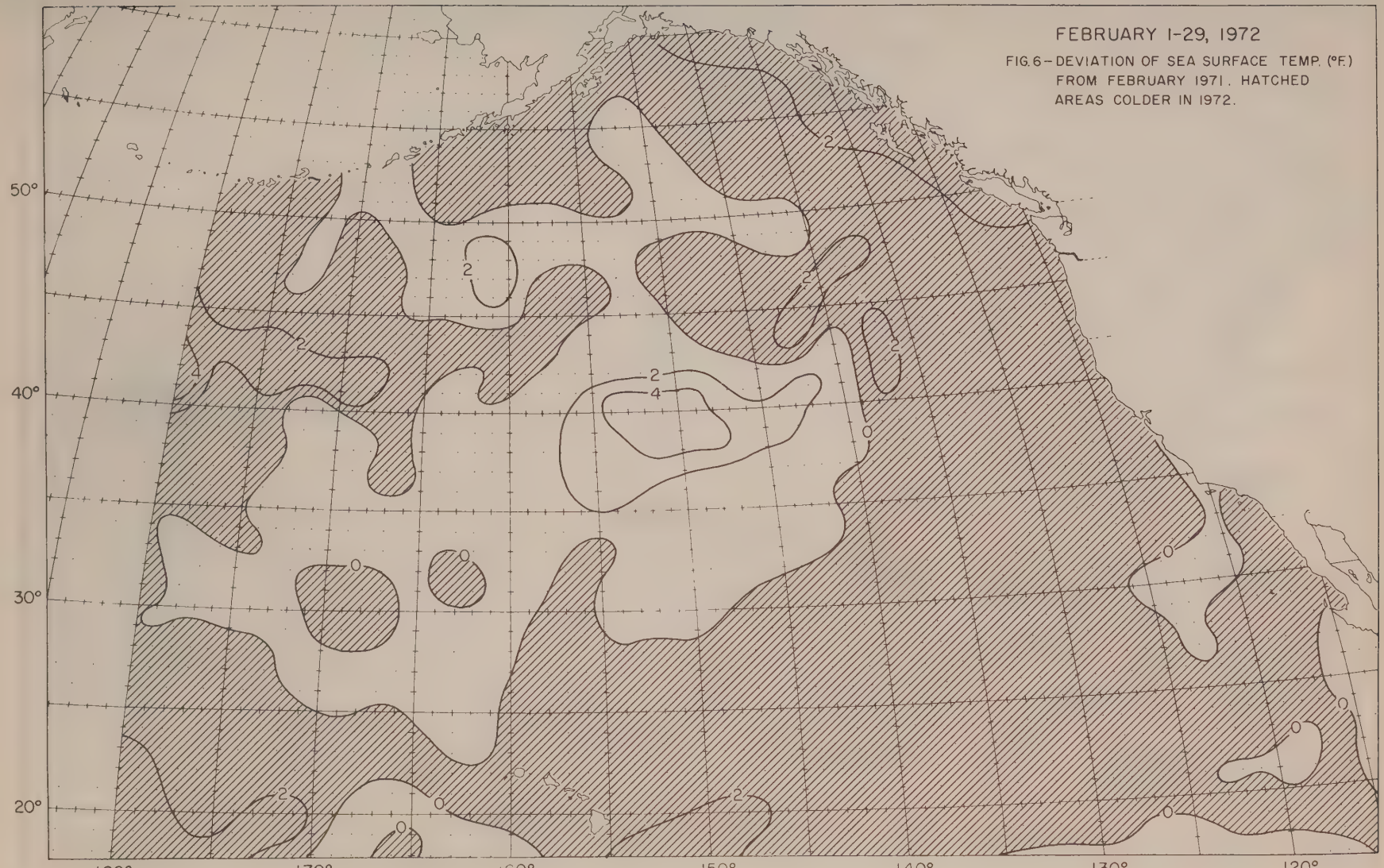


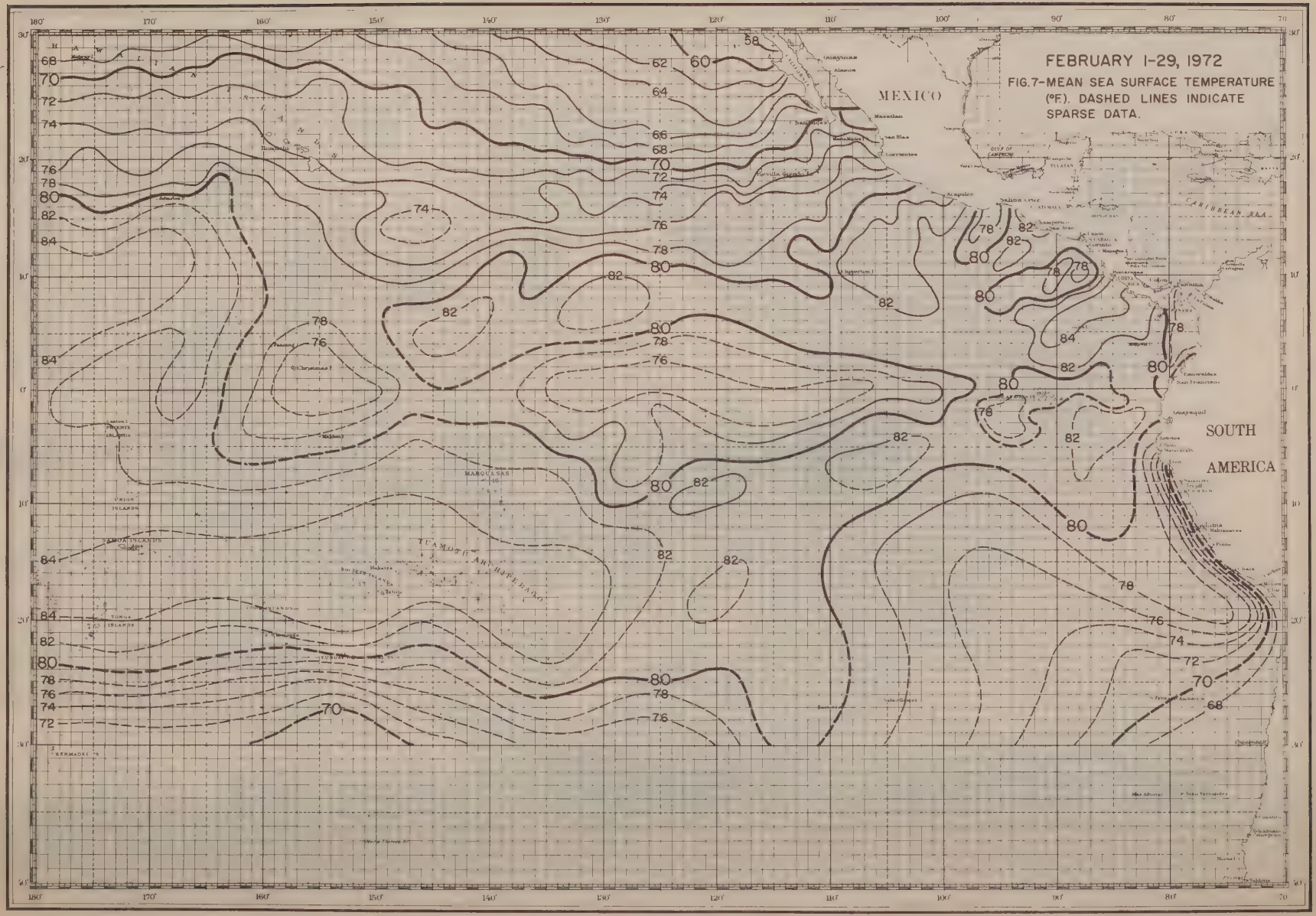
FEBRUARY 1-29, 1972

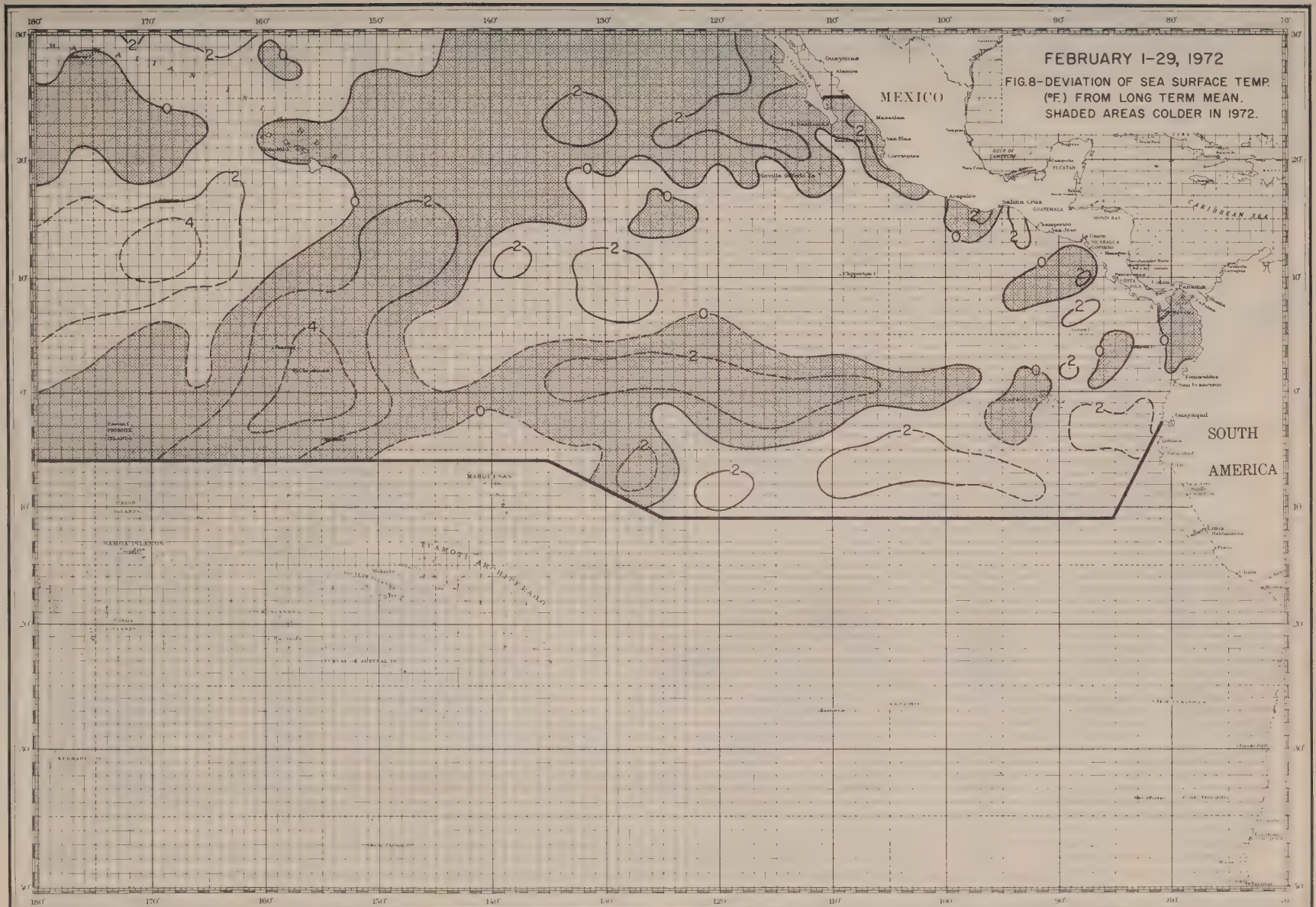
FIG. 4 - MEAN SEA SURFACE TEMPERATURE (°F)

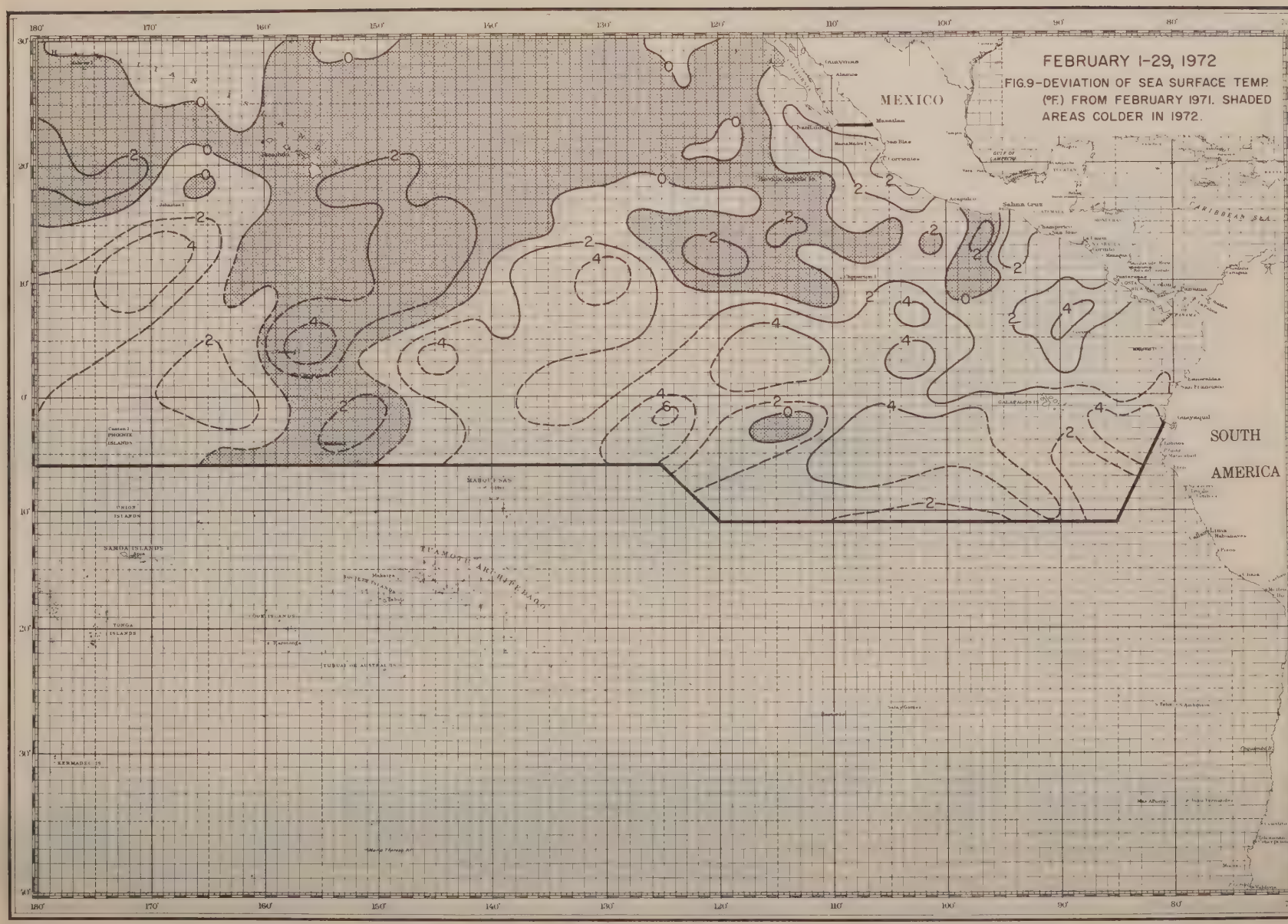


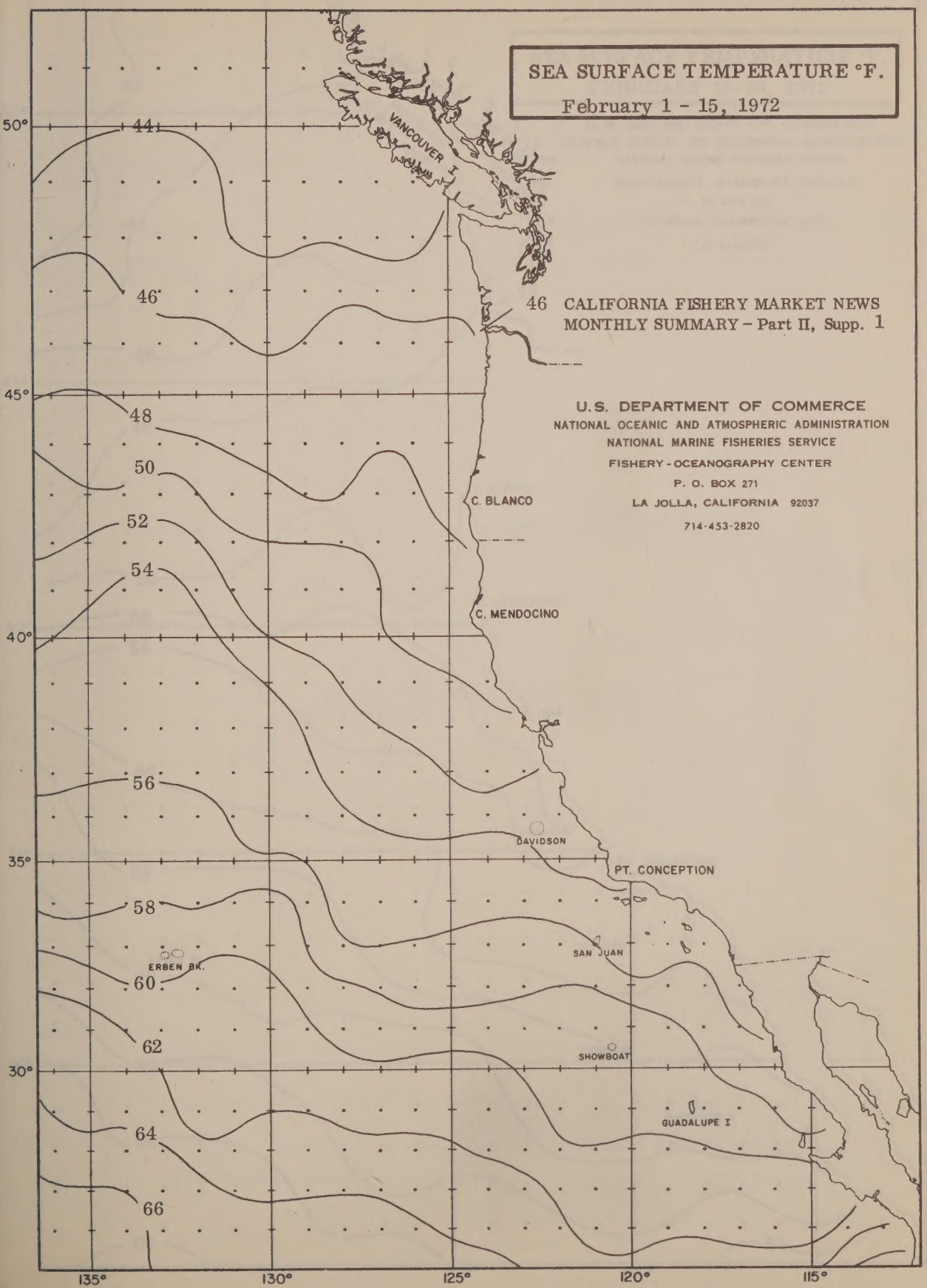

FEBRUARY 1-29, 1972
FIG. 5-DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1972.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4
6


FEBRUARY 1-29, 1972
FIG. 6 – DEVIATION OF SEA SURFACE TEMP. (°F.) FROM FEBRUARY 1971. HATCHED AREAS COLDER IN 1972.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
2
4
0
-2


FEBRUARY 1-29, 1972
FIG.7-MEAN SEA SURFACE TEMPERATURE (°F). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
TUAMOTU ARCHIPELAGO
MARQUESAS


FEBRUARY 1-29, 1972
FIG.8-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. SHADED AREAS COLDER IN 1972.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
PANAMA
CUBA
YUCATAN
GUAYAQUIL
MARQUESAS
SAMOA ISLANDS
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
10°
20°
30°


FEBRUARY 1-29, 1972
FIG.9-DEVIATION OF SEA SURFACE TEMP. (°F.) FROM FEBRUARY 1971. SHADED AREAS COLDER IN 1972.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
SAMOA ISLANDS
TONGA ISLANDS
PHOENIX ISLANDS
UNION ISLANDS
MARQUESAS
TUAMOTU ARCHIPELAGO
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°


SEA SURFACE TEMPERATURE °F.
February 1 - 15, 1972
46 CALIFORNIA FISHERY MARKET NEWS
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SHOWBOAT
GUADALUPE I
44
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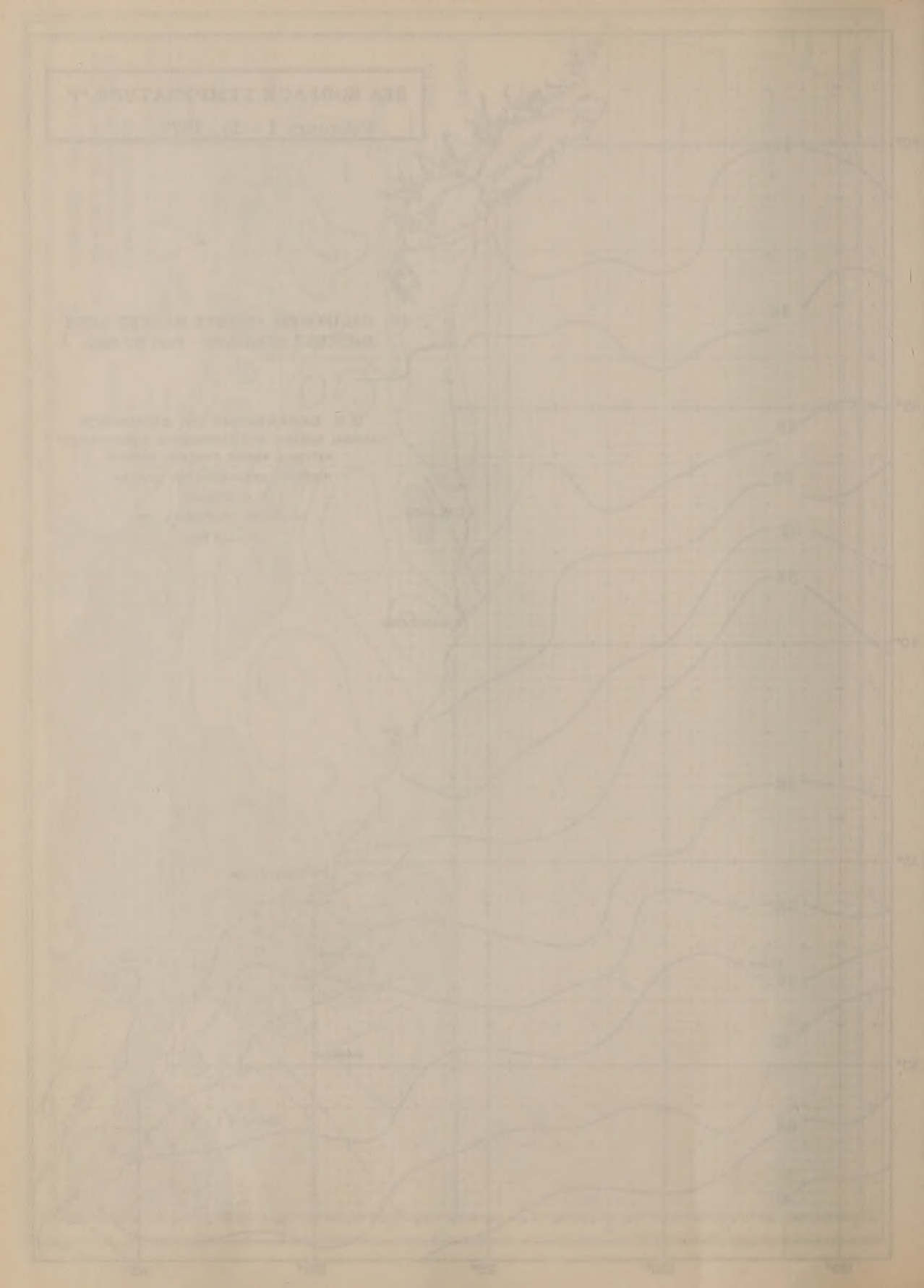
30°
135°
130°
125°
120°
115°



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